TEXAS STATE LIBRARY
AND
ARCHIVES COMMISSION

Time to Upgrade Your Library's Technology Equipment… **but How?**

With Cindy Fisher, Henry Stokes, and Carson Block

Carson Block Consulting Inc.
Technology Vision. Technology Power. Your Library.


Namaste
مرحبا
Willkommen
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Welcome
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Benvenuti

Welcome!
Our Agenda:

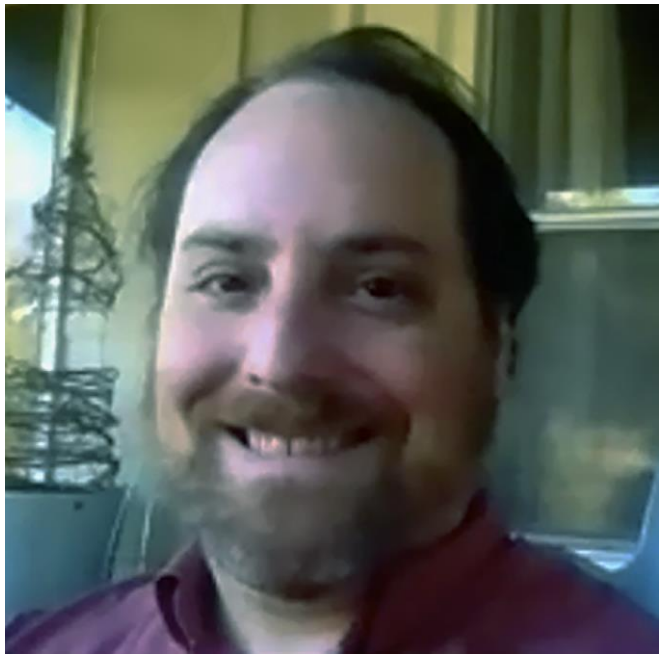
- Familiarize yourself with tools that can be used to **diagnose library technology problems and help determine needs**
- Understand **elements of technology planning best practices** for local library use
- Understand the **process of evaluating technology products**
- Gain confidence in **explaining your community's technology needs for grant proposals and funding requests**
- Live Session: Q&A and guided problem-solving using the tools discussed here

Your Hosts

Cindy Fisher

Digital Inclusion Consultant
TSLAC

Henry Stokes



Library Technology Consultant
TSLAC

Carson Block

Library Technology Consultant

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Handouts from this webinar:

- Toward Gigabit Libraries Toolkit
- Technology Inventory (Hardware and Software)
- Total Cost of Ownership (TCO) Worksheet
- Pro Tips and Examples
- Speed Test Worksheet
- Network Diagram Worksheet
- Purchasing Evaluation Guide
- Tech Items to Purchase
- Resource Links Document
- Rack Diagram Worksheet (OPTIONAL)

Available for download from Google Drive:
https://tinyurl.com/yj2e5r39

How Do I Get Webinar Materials?

Why be concerned about technology updates?

- Tech doesn’t last forever. (Sorry)
- We don’t really buy tech – instead we “rent” its capabilities for a fixed amount of time.
- Needs are always increasing (think COVID experiences)
  - Remote everything:
    - Learning
    - Meeting
    - Communicating
    - Telehealth
    - More…

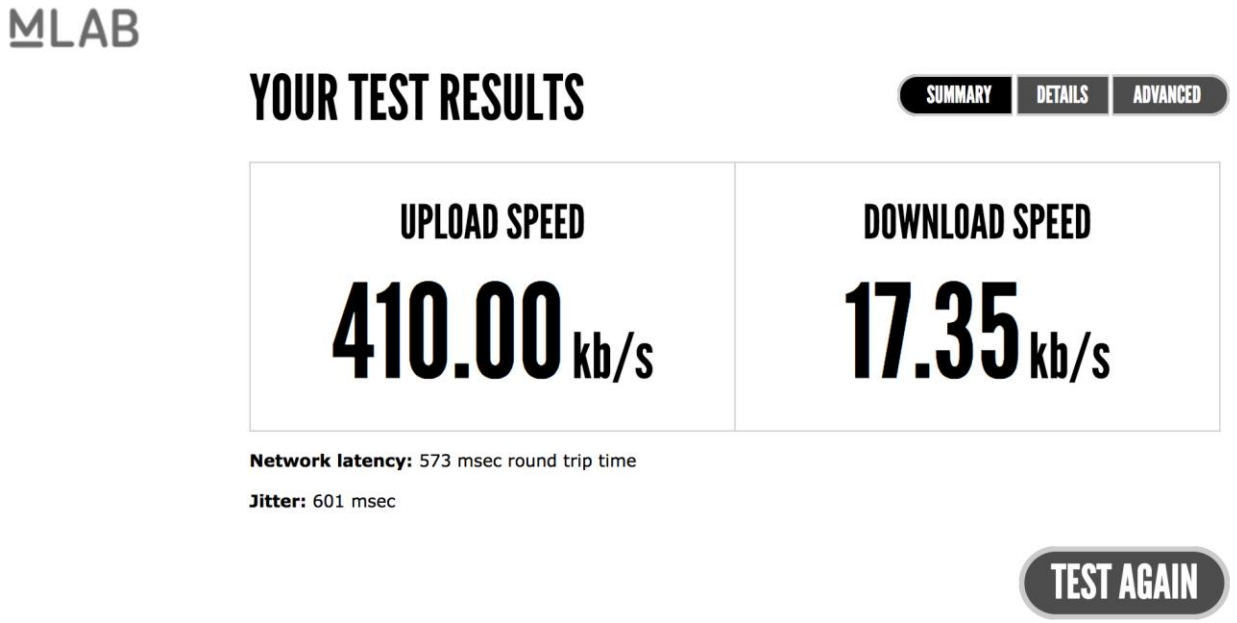
Carson’s definition of “broadband” Internet

- What is available?
- What can you afford? (don’t forget E-Rate, grants, other funding possibilities)
- Does it scale? (whatever you have today, you will need more tomorrow
- Advocacy: who else needs it and how do you join together?

This is a judgement-free zone!

Does your tech room look like this? (Actual Site Visit Photos)

Does your internet speed look like this?



Possible Technology Upgrades

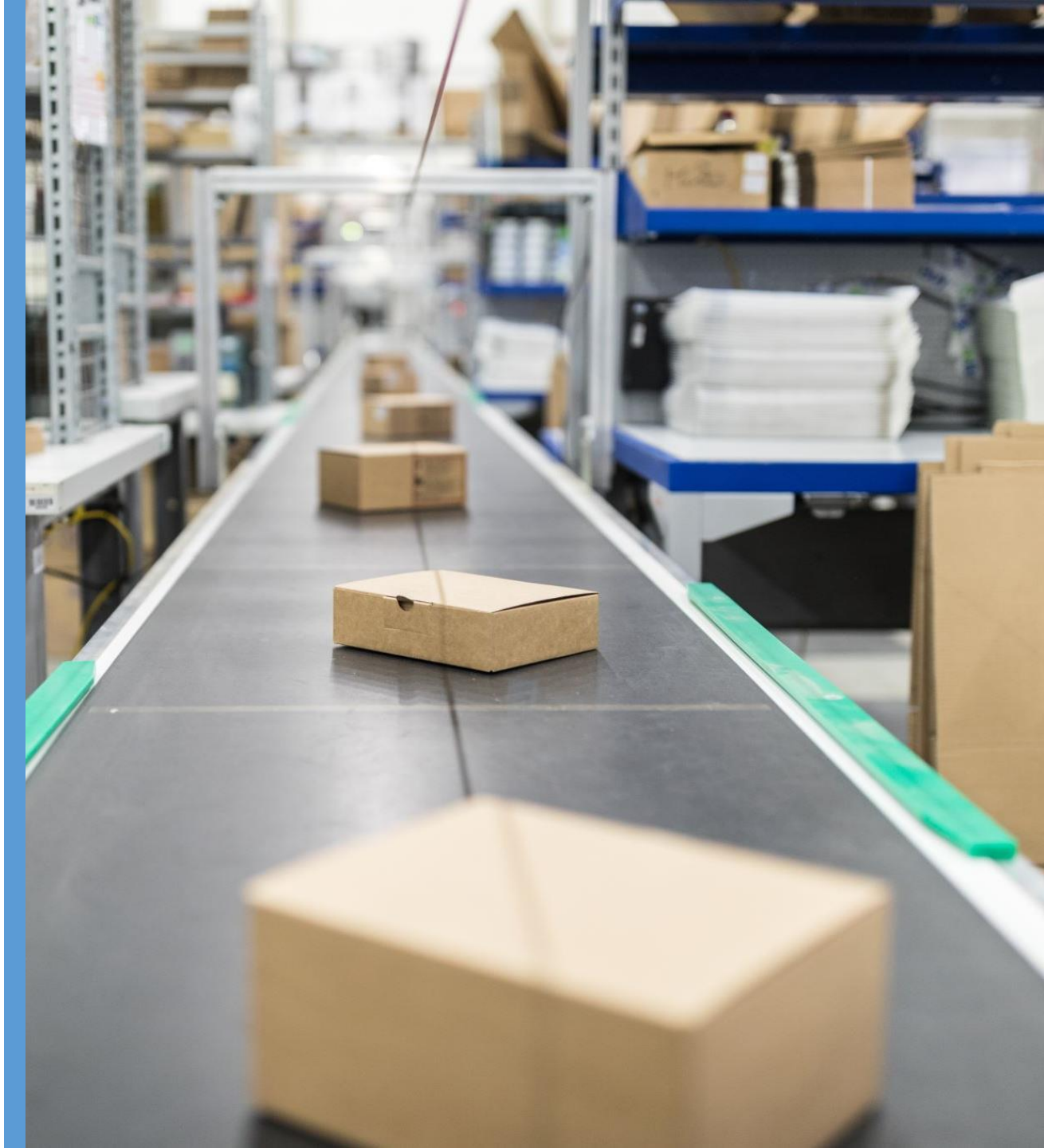
- Improved Internet connection
- Internal upgrades (wiring but not construction)
- Filtering solutions
- WiFi hotspots and devices with data plans
- Computers and Peripherals
- Laptops
- Printers

Be ready for funding opportunities if they appear!

Key Challenges and Pro Tips

Key Challenge: Supply Chain Snags

Pro Tip 1: Work with a vendor who can give you inventory and shipping status



Texas State Approved Vendors

Link to vendors: https://dir.texas.gov/View-Contracts-And-Services/Landing.aspx

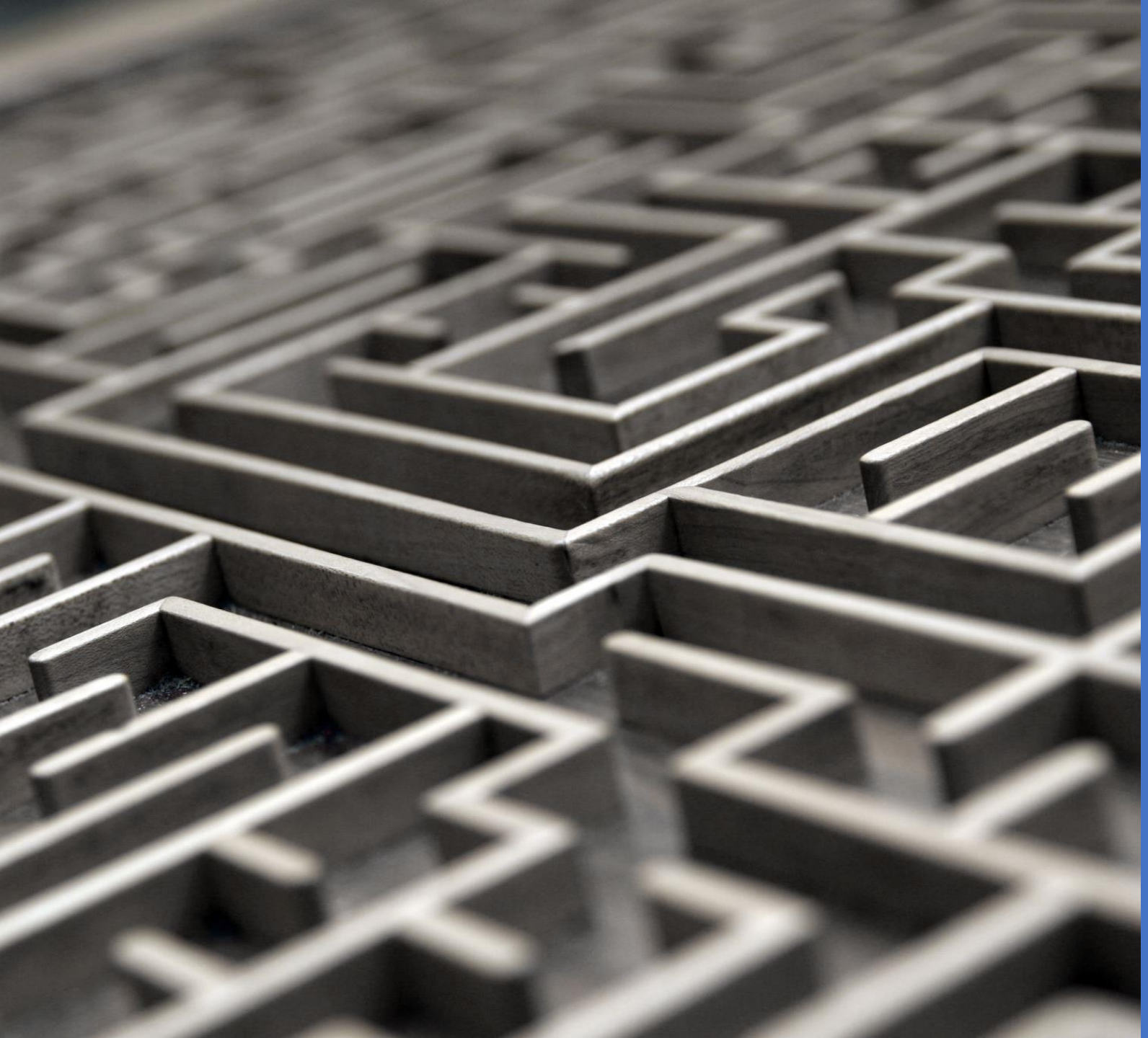
Webinar about vendors: https://onlinetraining.tsl.texas.gov/enrol/index.php?id=431

Key Challenge: Sustainability

Pro Tip #2: Start **evaluating** and **planning for replacement** when your gear is 3 years old.

What!? You say *all gear* in your library is more than 3 years old?

It’s OK – this is your lucky day!

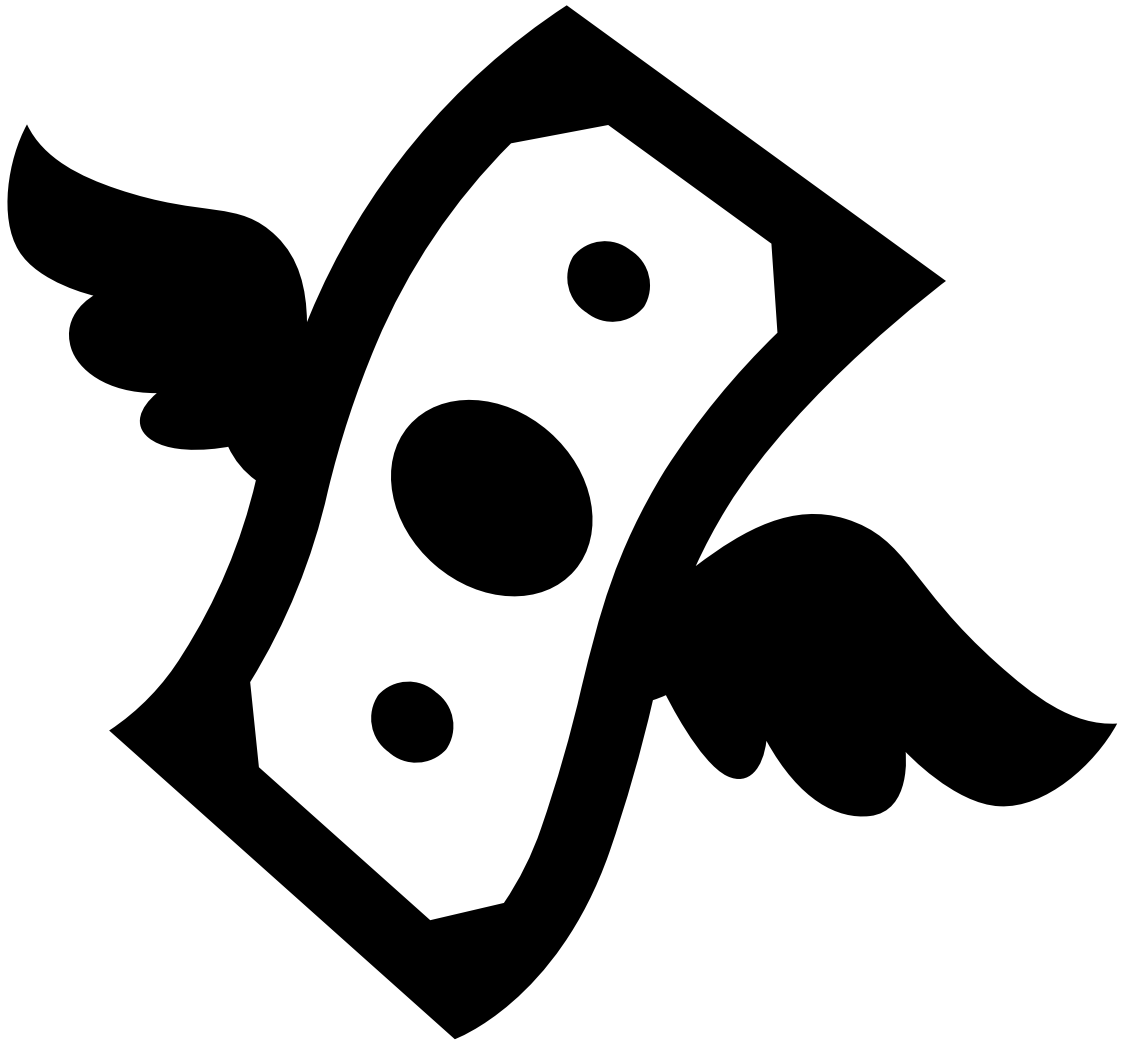


Key Challenge: Understanding Filtering & Compliance

Pro Tip #3: Start with policy (as informed by your technical options – more in a bit)

Key Challenge:

Understanding *all* the costs of a technology project.



Pro Tip #4: Determining Total Cost of Ownership

One of the first questions that comes up when considering a technology expense is “How much is this going to cost?”

Simple TCO Worksheet - Library IT (It's ok to use rough estimates - if you don’t know, leave amount blank)	
Expense	**Amount**
Staff Time - Research	$0.00
Vendor Quote	$0.00
Hardware	$0.00
Software	$0.00
Installation (not covered by vendor quote)	$0.00
Training (not covered by vendor quote)	$0.00
Ongoing support (ie.maintenance contracts)	$0.00
Licensing	$0.00
Insurance	$0.00
Construction costs	$0.00
Labor costs (incl. project management)	$0.00
Total	$0.00

There is no one way to determine TCO, but here are a few elements to consider:

- Research (including creation of “Requests for Proposals” or “Requests for Information”)
- Vendor Quotes (may include some of the items below)
- Hardware
- Software
- New processes (including security, backup and restore, etc.)
- Installation (including any retro-conversion or migration expenses)
- Training
- Ongoing support (including warrantees, annual maintenance contracts, etc.)
- Licensing
- Insurance
- Construction costs
- Any new labor costs (including project management, IT staff time, testing, etc.)
- Any downtime due to transition
- Replacement costs (over time – expected lifetime of initial investment)
- Any other long-term expenses

Technology Assessment: Diagnose Library Technology Problems and Determine Needs

	A	B	C	D	E	F	G	H
1	Hardware Inventory							
2	Quantity	Make	Model #	Location	Approx Age	Warranty Info	Type (Patron/Staff/Network/Other)	Notes
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
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14								
15								
16								
17								
18								
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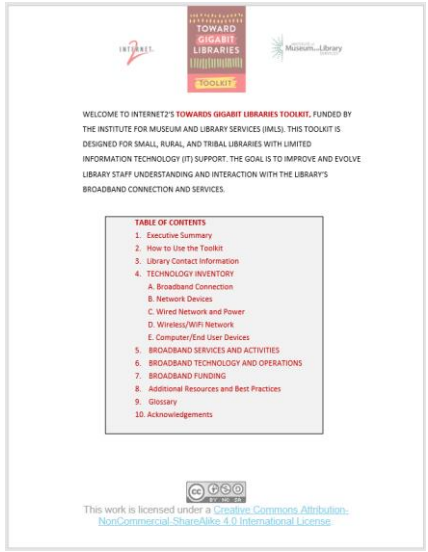
20								
21								

Technology Inventory

Your best friend for troubleshooting and assessments!

TOWARD GIGABIT LIBRARIES



WELCOME TO INTERNET2'S **TOWARDS GIGABIT LIBRARIES TOOLKIT**, FUNDED BY THE INSTITUTE FOR MUSEUM AND LIBRARY SERVICES (IMLS). THIS TOOLKIT IS DESIGNED FOR SMALL, RURAL, AND TRIBAL LIBRARIES WITH LIMITED INFORMATION TECHNOLOGY (IT) SUPPORT. THE GOAL IS TO IMPROVE AND EVOLVE LIBRARY STAFF UNDERSTANDING AND INTERACTION WITH THE LIBRARY'S BROADBAND CONNECTION AND SERVICES.

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1. Executive Summary
2. How to Use the Toolkit
3. Library Contact Information
4. TECHNOLOGY INVENTORY
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   B. Network Devices
   C. Wired Network and Power
   D. Wireless/WiFi Network
   E. Computer/End User Devices
5. BROADBAND SERVICES AND ACTIVITIES
6. BROADBAND TECHNOLOGY AND OPERATIONS
7. BROADBAND FUNDING
8. Additional Resources and Best Practices
9. Glossary
10. Acknowledgements

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Toward Gigabit Libraries “Explainer” Video

https://www.youtube.com/watch?v=PXWv3-HYm-I

INSTITUTE of Museum and Library SERVICES

TOWARD GIGABIT LIBRARIES

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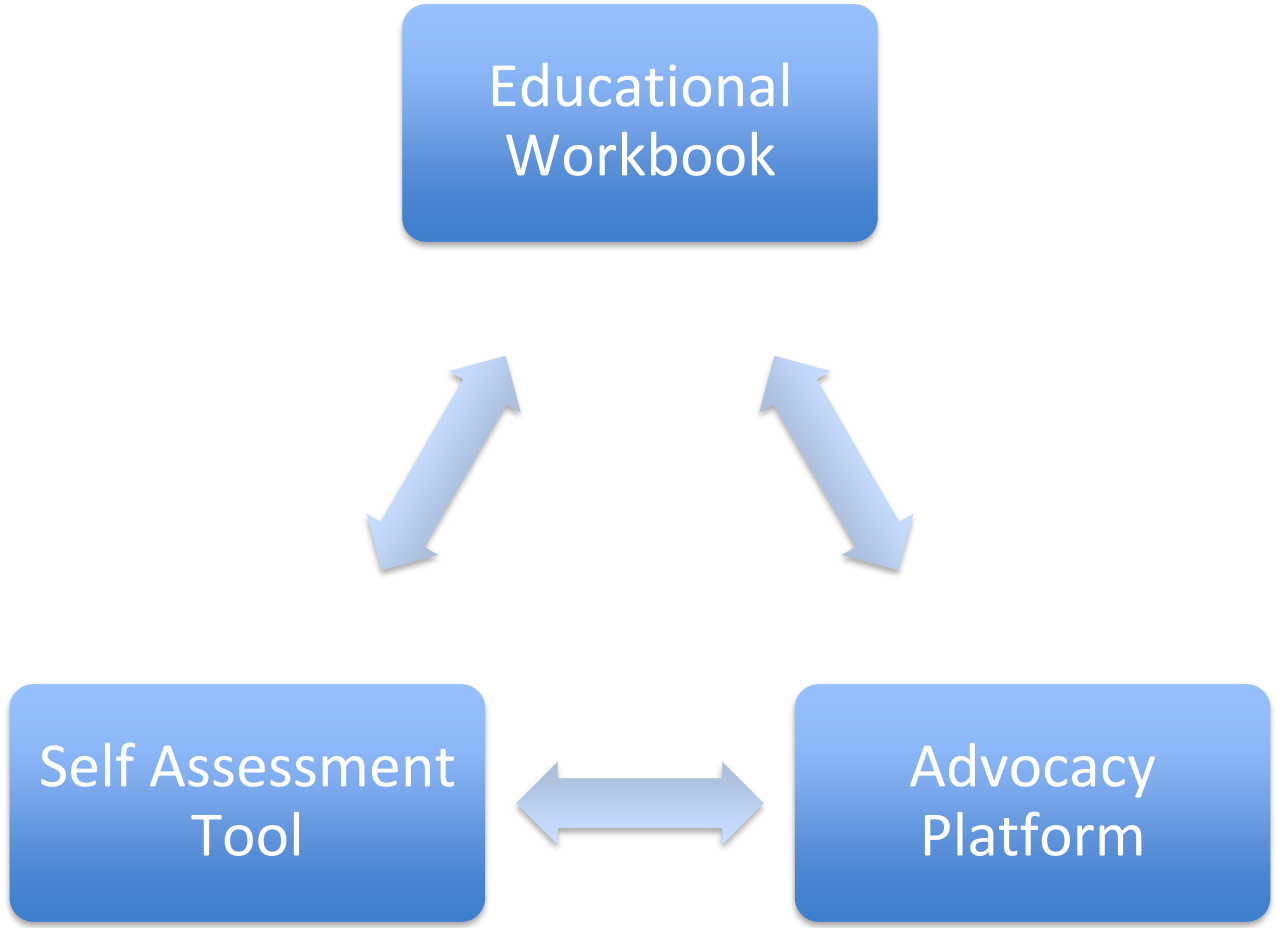
What is the Toolkit?



Toolkit Approach

Questions are presented first, and additional information and resources follow in text boxes

5. TECHNOLOGY INVENTORY—YOUR LIBRARY

In this section, you will inventory some of the key pieces of the technology inside your library, including your network, computers, and other important technology components. This inventory will help you understand what sort of equipment you have now, and provides a basis to determine if you need different or additional equipment for the future.

5A. Broadband Connection

If you have more than one broadband connection, i.e., two different types of technologies or service providers, answer the following questions in this "Broadband Connection" question for each connection.

1. What type of internet connection does your library currently have?
Choose all that apply.

- ☐ Digital Subscriber Line (DSL)
- ☐ Cable Modem
- ☐ Fiber
- ☐ Wireless
- ☐ Satellite
- ☐ Other {add here}

There are three primary types of broadband—wireline (DSL, cable modem, and fiber), wireless, and satellite. Definitions for the types of Internet connections listed here are available at the FCC website:-https://www.fcc.gov/general/types-broadband-connections

Speed Ranges by Type of Broadband (Kbps - kilobit, Mbps - megabit, Tbps - terabit)

Technology	Type	Download Speed Range	Upload Speed Range
Fiber	Wireline	100 Mbps - 1 Tbps	100 Mbps - 1 Tbps
Cable Modem*	Wireline	256 Kbps - 10 Gbps	256 Kbps - 10 Gbps
DSL*	Wireline	256 Kbps - 100 Mbps	256 Kbps - 16 Mbps
Fixed Wireless / Microwave	Wireless	1 Mbps - 155 Mbps	1 Mbps - 155 Mbps

Let’s look at the Toolkit, section-by-section

2. HOW TO USE THE TOOLKIT

1. Read the question in the gray box.
2. Place your cursor in the gray box below the question and type your response. If you need more space, simply hit the return key.
3. Below each gray question and answer box, is an outlined box with resources to help you answer the question.

The Toolkit is designed to help library staff assess and evaluate their library’s broadband connection, including inside wiring. The Toolkit also serves as an educational training tool aimed at guiding library staff through the sometimes confusing world of broadband technology in an easy to understand and accessible way.

The Toolkit is organized as follows: Questions relating to the library's broadband connection, infrastructure, and related services and operations are posed in a series of gray boxes. The person using this toolkit may type the answers to these questions in the same gray boxes. “Help text” appears immediately below each question and is designed to assist in answering each question directly or provide additional guidance, education, detail, information and additional resources associated with the topic.

Some of the activities and training resources that library staff may do while engaging in the Toolkit are items that can be listed as a part of the library’s “Broadband Improvement Plan.”

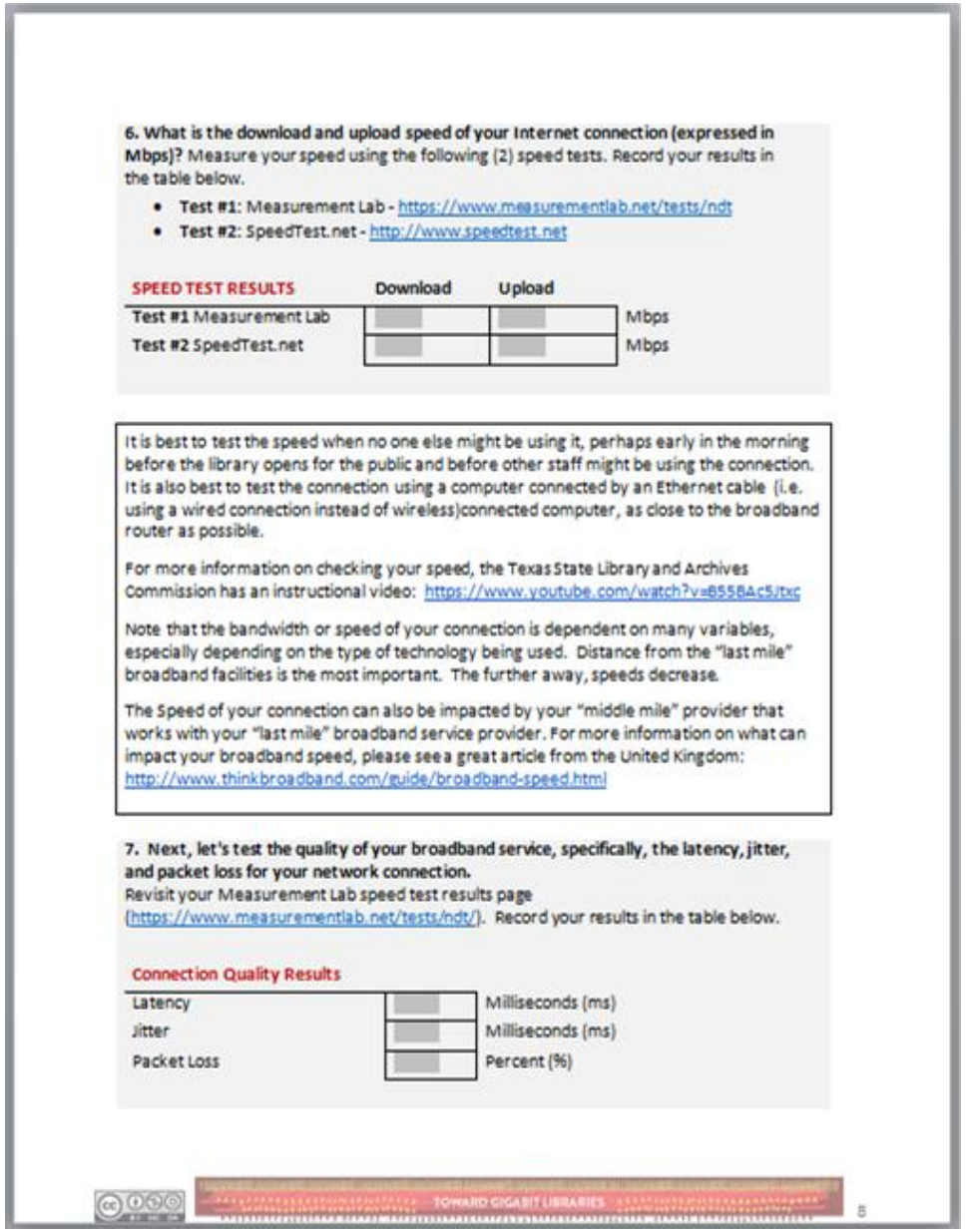
In some instances, where available, working through the Toolkit with a technical resource (staff member, volunteer, etc.) is helpful.

https://internet2.edu/community/community-anchor-program/cap-library-resources/toward-gigabit-libraries/

Technology Inventory – Your Library

In this section, you will inventory some of the key pieces of the technology inside your library, including your network, computers, and other important technology components. This inventory will help you understand what sort of equipment you have now and provides a basis to determine if you need different or additional equipment for the future.

- Broadband Connection
- Network Devices
- Wired Network and Power
- Wireless Network and Power
- Computer and End User Devices



6. What is the download and upload speed of your Internet connection (expressed in Mbps)? Measure your speed using the following (2) speed tests. Record your results in the table below.

- **Test #1:** Measurement Lab - https://www.measurementlab.net/tests/ndt
- **Test #2:** SpeedTest.net - http://www.speedtest.net

SPEED TEST RESULTS	Download	Upload	
Test #1 Measurement Lab			Mbps
Test #2 SpeedTest.net			Mbps

It is best to test the speed when no one else might be using it, perhaps early in the morning before the library opens for the public and before other staff might be using the connection. It is also best to test the connection using a computer connected by an Ethernet cable (i.e. using a wired connection instead of wireless)connected computer, as close to the broadband router as possible.

For more information on checking your speed, the Texas State Library and Archives Commission has an instructional video: https://www.youtube.com/watch?v=8558Ac5jtxc

Note that the bandwidth or speed of your connection is dependent on many variables, especially depending on the type of technology being used. Distance from the "last mile" broadband facilities is the most important. The further away, speeds decrease.

The Speed of your connection can also be impacted by your "middle mile" provider that works with your "last mile" broadband service provider. For more information on what can impact your broadband speed, please see a great article from the United Kingdom: http://www.thinkbroadband.com/guide/broadband-speed.html

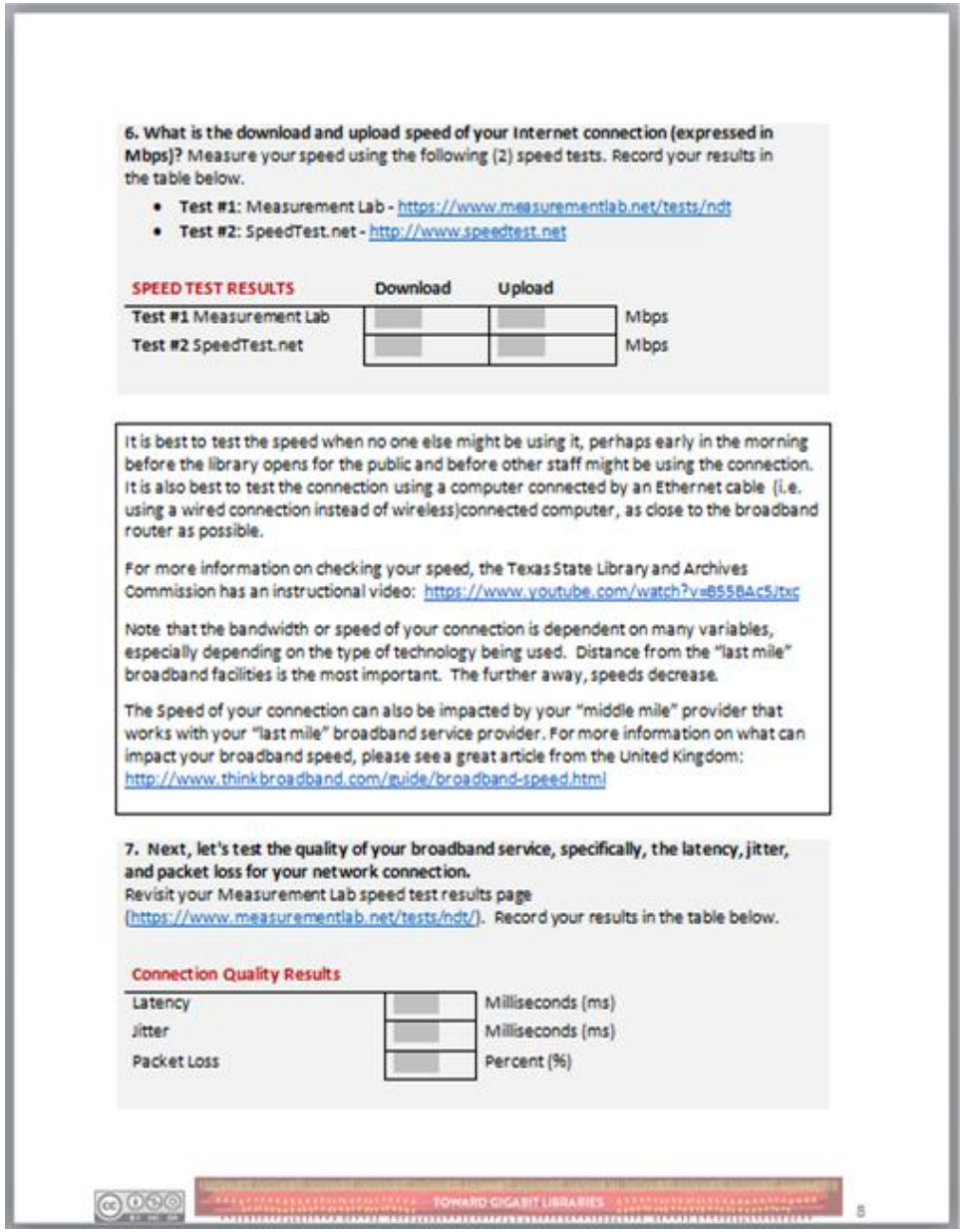
7. Next, let's test the quality of your broadband service, specifically, the latency, jitter, and packet loss for your network connection.
Revisit your Measurement Lab speed test results page (https://www.measurementlab.net/tests/ndt/). Record your results in the table below.

Connection Quality Results		
Latency		Milliseconds (ms)
Jitter		Milliseconds (ms)
Packet Loss		Percent (%)

Broadband Services and Activities

In this section, the types of broadband services and applications are discussed in order to ensure that the library has sufficient bandwidth to support patron and staff use of various devices and applications both today and in the future.

- Bandwidth Needs
- Hot-Spot Lending
- Internet Filtering
- Offered Services



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Connection Quality Results		
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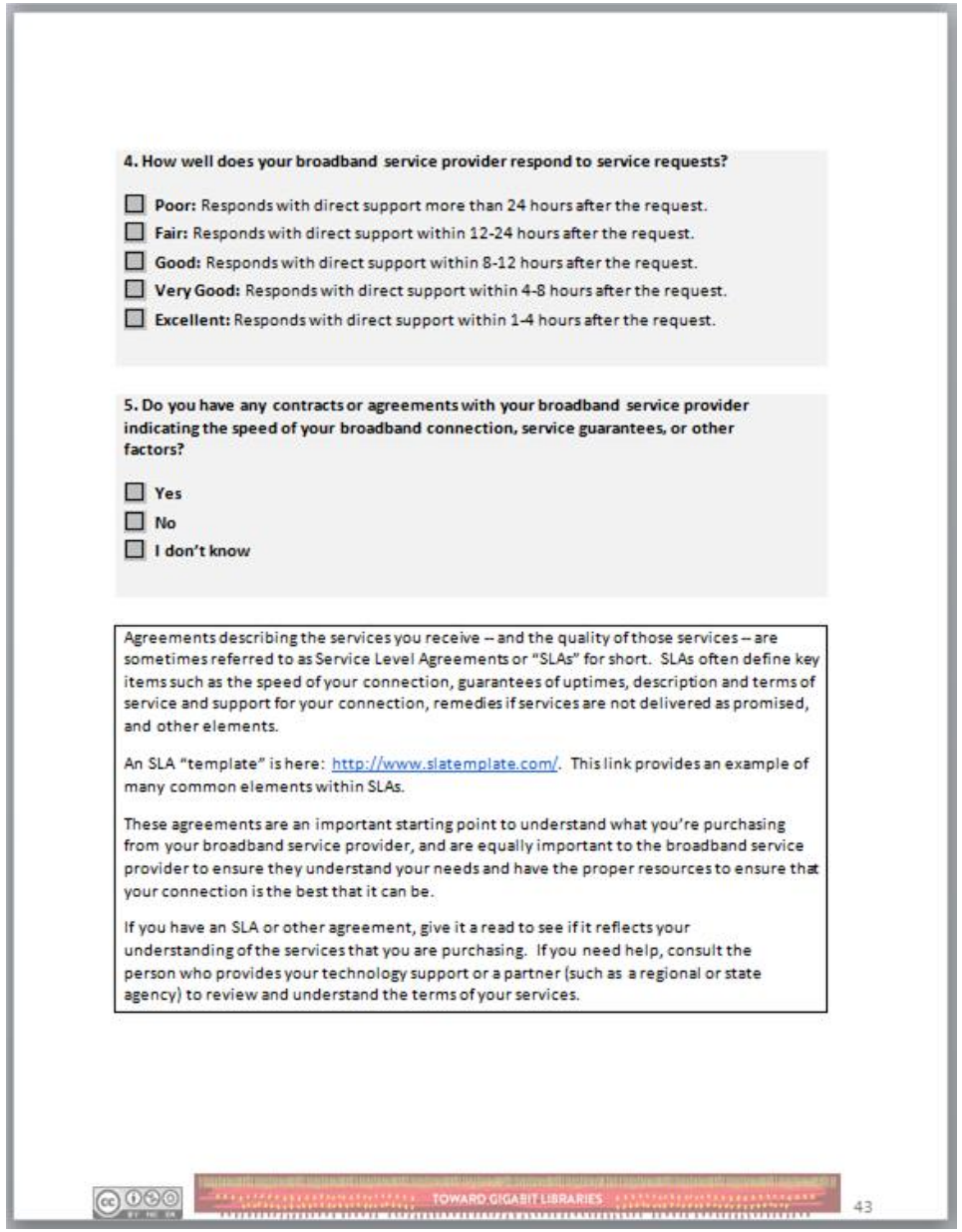
Packet Loss		Percent (%)

Broadband Technical Operational Support

Technology in libraries is more than just a collection of gear. People, including library staff and those who provide technical support, are just as important. In this section you will learn more about the people who help make technology available in your library and determine if there are any areas where you could benefit from additional support.

- Available Technology Support
- Staff Training Resources
- ISP Technical Support
- ISP Service Requests
- ISP Service Guarantees



4. How well does your broadband service provider respond to service requests?

- ☐ **Poor:** Responds with direct support more than 24 hours after the request.
- ☐ **Fair:** Responds with direct support within 12-24 hours after the request.
- ☐ **Good:** Responds with direct support within 8-12 hours after the request.
- ☐ **Very Good:** Responds with direct support within 4-8 hours after the request.
- ☐ **Excellent:** Responds with direct support within 1-4 hours after the request.

5. Do you have any contracts or agreements with your broadband service provider indicating the speed of your broadband connection, service guarantees, or other factors?

- ☐ **Yes**
- ☐ **No**
- ☐ **I don't know**

Agreements describing the services you receive -- and the quality of those services -- are sometimes referred to as Service Level Agreements or "SLAs" for short. SLAs often define key items such as the speed of your connection, guarantees of uptimes, description and terms of service and support for your connection, remedies if services are not delivered as promised, and other elements.

An SLA "template" is here: http://www.slatemplate.com/. This link provides an example of many common elements within SLAs.

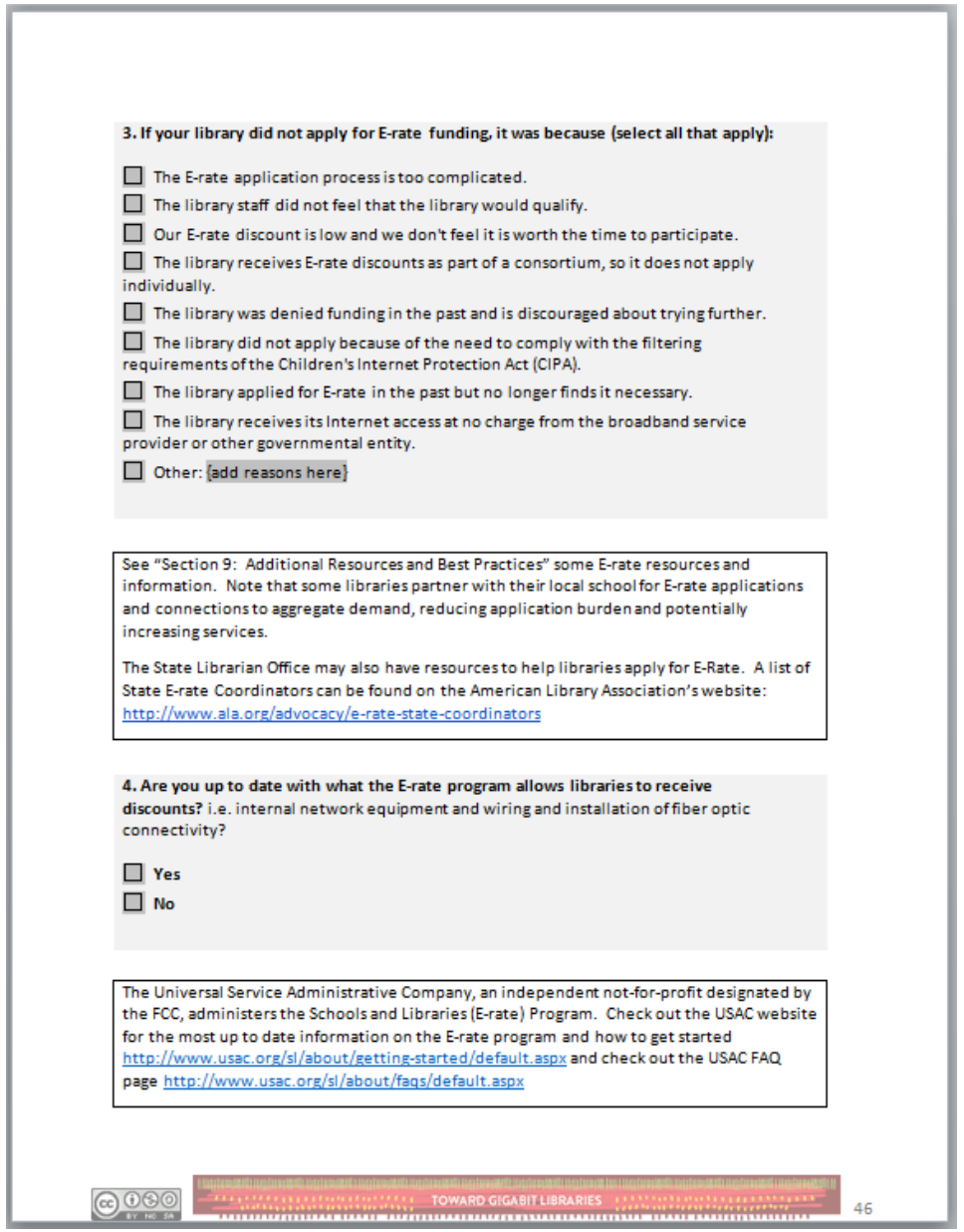
These agreements are an important starting point to understand what you're purchasing from your broadband service provider, and are equally important to the broadband service provider to ensure they understand your needs and have the proper resources to ensure that your connection is the best that it can be.

If you have an SLA or other agreement, give it a read to see if it reflects your understanding of the services that you are purchasing. If you need help, consult the person who provides your technology support or a partner (such as a regional or state agency) to review and understand the terms of your services.

Broadband Funding

Technology expenses are important budget considerations for all libraries. In this section you will learn about several opportunities available to help provide funding for your library broadband connectivity.

- Price For Connection
- E-rate Funding
- Other Funding Sources



3. If your library did not apply for E-rate funding, it was because (select all that apply):

- ☐ The E-rate application process is too complicated.
- ☐ The library staff did not feel that the library would qualify.
- ☐ Our E-rate discount is low and we don't feel it is worth the time to participate.
- ☐ The library receives E-rate discounts as part of a consortium, so it does not apply individually.
- ☐ The library was denied funding in the past and is discouraged about trying further.
- ☐ The library did not apply because of the need to comply with the filtering requirements of the Children's Internet Protection Act (CIPA).
- ☐ The library applied for E-rate in the past but no longer finds it necessary.
- ☐ The library receives its Internet access at no charge from the broadband service provider or other governmental entity.
- ☐ Other: {add reasons here}

See "Section 9: Additional Resources and Best Practices" some E-rate resources and information. Note that some libraries partner with their local school for E-rate applications and connections to aggregate demand, reducing application burden and potentially increasing services.

The State Librarian Office may also have resources to help libraries apply for E-Rate. A list of State E-rate Coordinators can be found on the American Library Association's website: http://www.ala.org/advocacy/e-rate-state-coordinators

4. Are you up to date with what the E-rate program allows libraries to receive discounts? i.e. internal network equipment and wiring and installation of fiber optic connectivity?

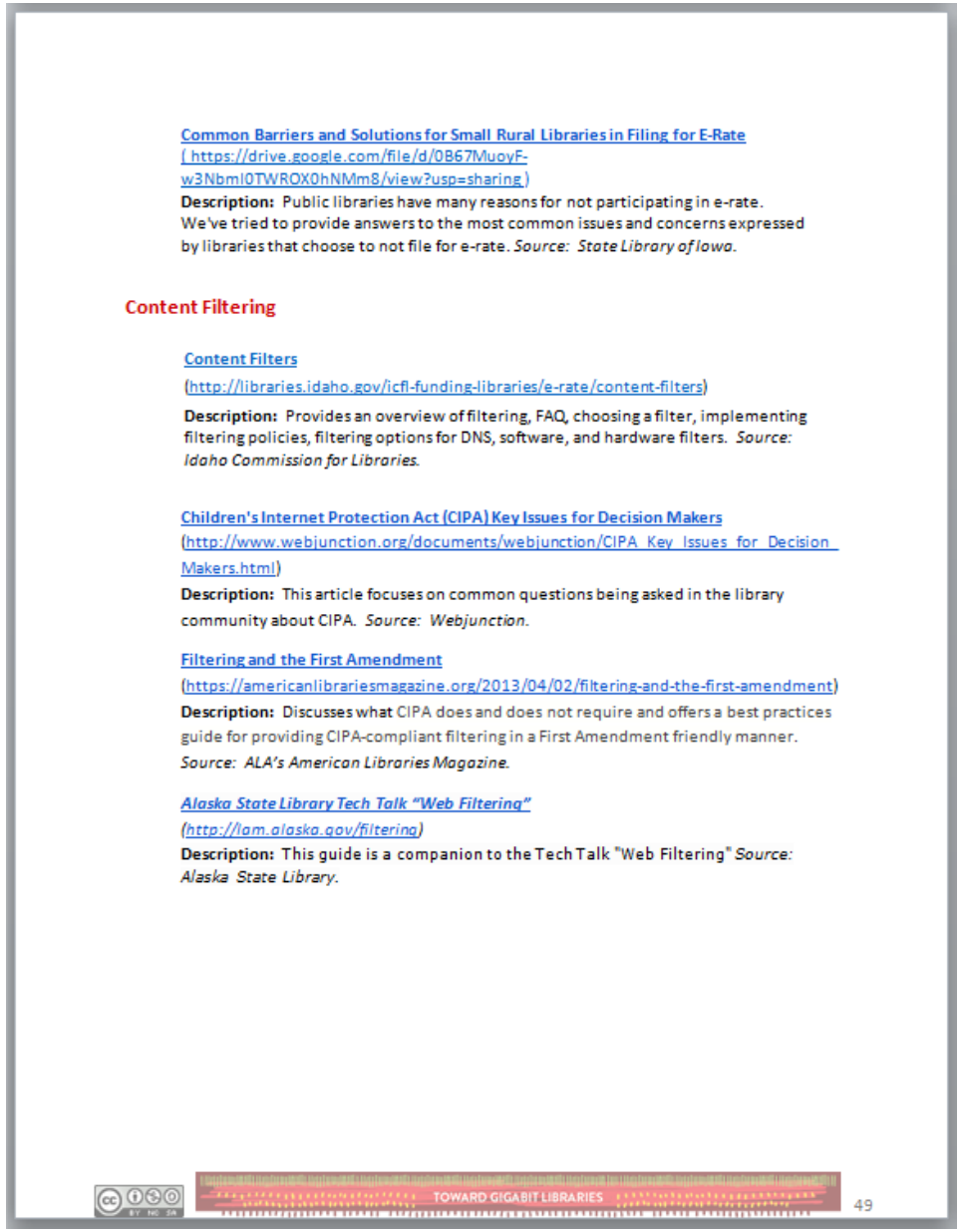
- ☐ **Yes**
- ☐ **No**

The Universal Service Administrative Company, an independent not-for-profit designated by the FCC, administers the Schools and Libraries (E-rate) Program. Check out the USAC website for the most up to date information on the E-rate program and how to get started http://www.usac.org/sl/about/getting-started/default.aspx and check out the USAC FAQ page http://www.usac.org/sl/about/faqs/default.aspx

Additional Resources and Best Practices

The topics listed here are designed to provide you even more insight and resources into improving your library's broadband connectivity and services. You may find these items helpful in gaining a better understanding of your broadband connection, data network, and computers.

- Erate
- Content Filtering
- Additional Broadband 101 Resources
- Free Technology Related Training Opportunities & Resources for Librarians
- Data Backup
- Internet Use Policies



Common Barriers and Solutions for Small Rural Libraries in Filing for E-Rate
(https://drive.google.com/file/d/0B67MuoyF-w3NbmI0TWROX0hNMm8/view?usp=sharing)
Description: Public libraries have many reasons for not participating in e-rate. We've tried to provide answers to the most common issues and concerns expressed by libraries that choose to not file for e-rate. *Source: State Library of Iowa.*

Content Filtering

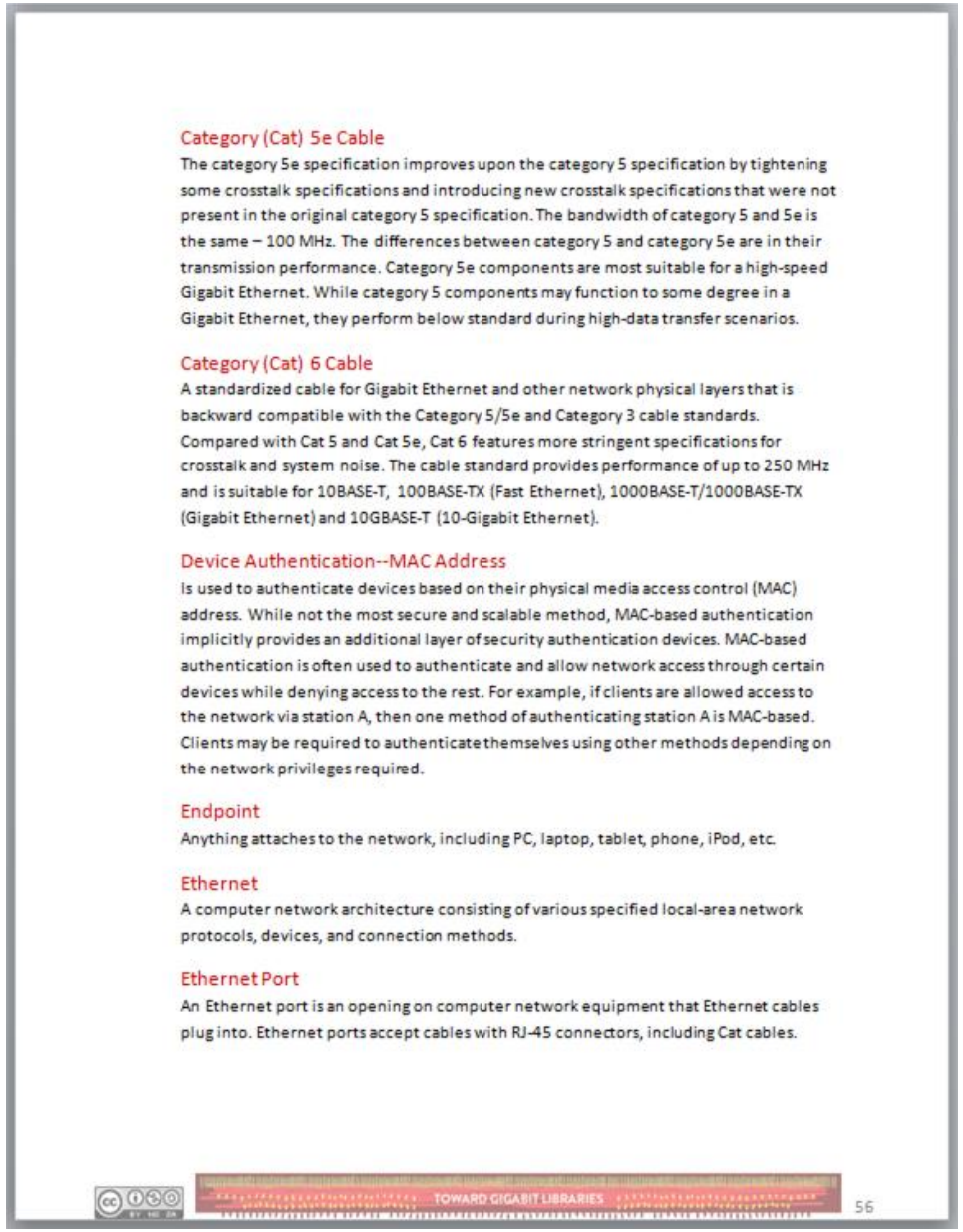
Content Filters
(http://libraries.idaho.gov/icfl-funding-libraries/e-rate/content-filters)
Description: Provides an overview of filtering, FAQ, choosing a filter, implementing filtering policies, filtering options for DNS, software, and hardware filters. *Source: Idaho Commission for Libraries.*

Children's Internet Protection Act (CIPA) Key Issues for Decision Makers
(http://www.webjunction.org/documents/webjunction/CIPA_Key_Issues_for_Decision_Makers.html)
Description: This article focuses on common questions being asked in the library community about CIPA. *Source: Webjunction.*

Filtering and the First Amendment
(https://americanlibrariesmagazine.org/2013/04/02/filtering-and-the-first-amendment)
Description: Discusses what CIPA does and does not require and offers a best practices guide for providing CIPA-compliant filtering in a First Amendment friendly manner. *Source: ALA's American Libraries Magazine.*

Alaska State Library Tech Talk "Web Filtering"
(http://lam.alaska.gov/filtering)
Description: This guide is a companion to the Tech Talk "Web Filtering" *Source: Alaska State Library.*

Glossary



Category (Cat) 5e Cable

The category 5e specification improves upon the category 5 specification by tightening some crosstalk specifications and introducing new crosstalk specifications that were not present in the original category 5 specification. The bandwidth of category 5 and 5e is the same – 100 MHz. The differences between category 5 and category 5e are in their transmission performance. Category 5e components are most suitable for a high-speed Gigabit Ethernet. While category 5 components may function to some degree in a Gigabit Ethernet, they perform below standard during high-data transfer scenarios.

Category (Cat) 6 Cable

A standardized cable for Gigabit Ethernet and other network physical layers that is backward compatible with the Category 5/5e and Category 3 cable standards. Compared with Cat 5 and Cat 5e, Cat 6 features more stringent specifications for crosstalk and system noise. The cable standard provides performance of up to 250 MHz and is suitable for 10BASE-T, 100BASE-TX (Fast Ethernet), 1000BASE-T/1000BASE-TX (Gigabit Ethernet) and 10GBASE-T (10-Gigabit Ethernet).

Device Authentication--MAC Address

Is used to authenticate devices based on their physical media access control (MAC) address. While not the most secure and scalable method, MAC-based authentication implicitly provides an additional layer of security authentication devices. MAC-based authentication is often used to authenticate and allow network access through certain devices while denying access to the rest. For example, if clients are allowed access to the network via station A, then one method of authenticating station A is MAC-based. Clients may be required to authenticate themselves using other methods depending on the network privileges required.

Endpoint

Anything attaches to the network, including PC, laptop, tablet, phone, iPod, etc.

Ethernet

A computer network architecture consisting of various specified local-area network protocols, devices, and connection methods.

Ethernet Port

An Ethernet port is an opening on computer network equipment that Ethernet cables plug into. Ethernet ports accept cables with RJ-45 connectors, including Cat cables.

Connection Speed Tests

Time to Upgrade Your Library's Technology Equipment…but How?
Speed Test Worksheet
July 29, 2021

TEXAS STATE LIBRARY AND ARCHIVES COMMISSION

Speed Test (https://speed.measurementlab.net/#/, https://www.speedtest.net/)

Date / Time	SPEED TEST RESULTS	Download	Upload		QUALITY TEST RESULTS			Notes
	Test #1 Measurement Lab			Mbps	Latency		Milliseconds (ms)	
	Test #2 SpeedTest.net			Mbps	Ping		Milliseconds (ms)	

Date / Time	SPEED TEST RESULTS	Download	Upload		QUALITY TEST RESULTS			Notes
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Date / Time	SPEED TEST RESULTS	Download	Upload		QUALITY TEST RESULTS			Notes
	Test #1 Measurement Lab			Mbps	Latency		Milliseconds (ms)	
	Test #2 SpeedTest.net			Mbps	Ping		Milliseconds (ms)	

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Real-life Example #1: Patrons or staff complaining about low Internet speeds

Solution: Drawing a Network Diagram and using it to solve problems

Time to Upgrade Your Library's Technology Equipment…but How?
Network Diagram Worksheet
July 29, 2021

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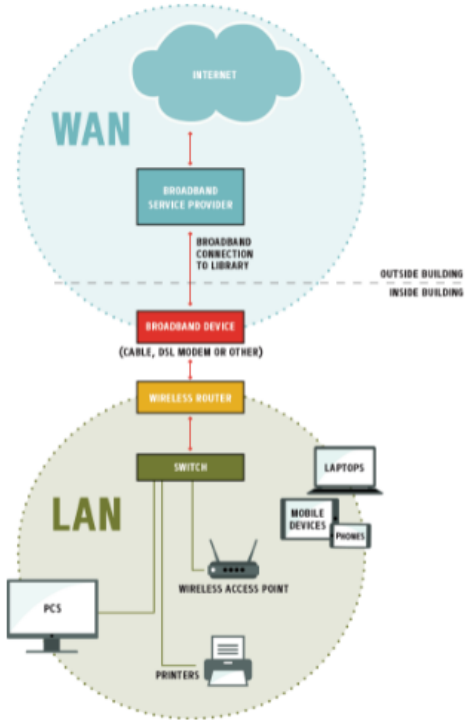
Sample Network Diagram



Your Network Diagram

Carson Block Consulting Inc. Technology Vision. Technology Power. Your Library.

Carson Block librarylandtech@gmail.com

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Carson Block Consulting Inc. Technology Vision. Technology Power. Your Library.

Real-life Example #2: WiFi “Dead spots”

Solution:
“Seeing the invisible”
by using
a WiFi Stumbler

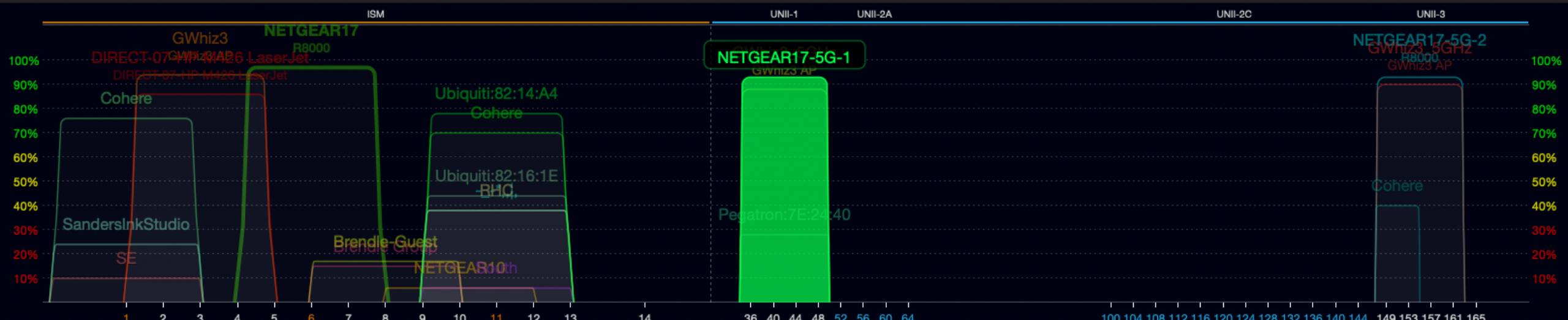
PS: The Toolkit lists some to try for Android, IOS, Mac and PC! See page 35...

Scanning: Wi-Fi | **NETGEAR17** 6 20 MHz 130 Mbps N

All 2.4 GHz 5 GHz Open Secure Filter

BSSID	Network Name	Vendor	Annotations	Signal	Channel	Channel Width	Band	Mode	Generation	Security	Max Rate	Seen
E8:FC:...B:A9:E6	NETGEAR17	Netgear I...		97%	6	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
48:F8:B...B:14:0D	GWhiz3	Linksys		94%	3	20 MHz	2.4 GHz	b/g/n	4	WPA/WPA2 (PSK)	216.7 Mbps	Just now
E8:FC:A...B:A9:E5	NET...-5G-1	Netgear Inc.		93%	44	80 MHz	5 GHz	a/n/ac	5	WPA2 (PSK)	1300 Mbps	Just now
E8:FC:A...B:A9:E7	NET...-5G-2	Netgear Inc.		93%	153	80 MHz	5 GHz	a/n/ac	5	WPA2 (PSK)	1300 Mbps	Just now
48:F8:B...B:14:0F	GWhi...5GHz	Linksys		90%	161	80 MHz	5 GHz	a/n/ac	5	WPA/WPA2 (PSK)	1300 Mbps	Just now
48:F8:B...B:14:0E	GWhi...5GHz	Linksys		88%	36	80 MHz	5 GHz	a/n/ac	5	WPA/WPA2 (PSK)	1300 Mbps	Just now
42:B8:9...0:10:07	DIRE...serJet	Hon Hai Pr...		86%	3	20 MHz	2.4 GHz	g/n	4	WPA2 (PSK)	72.2 Mbps	Just now
06:18:D...2:14:A4	*Hidd...twork*	Ubiquiti N...		78%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
04:18:D...82:14:2F	Cohere	Ubiquiti N...		76%	1	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
04:18:D...2:14:A4	Cohere	Ubiquiti N...		70%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
04:92:2...5:B1:98	RLK-...G_2G	ASUSTeK...		44%	10	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	144.4 Mbps	35 sec ago
04:18:D6:82:16:1E	Cohere	Ubiquiti N...		44%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	35 sec ago
06:18:D6:82:16:1E	*Hidd...twork*	Ubiquiti N...		44%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
04:18:D...81:14:A4	Cohere	Ubiquiti N...		40%	149	40 MHz	5 GHz	a/n	4	WPA2 (PSK)	300 Mbps	Just now
64:A5:C...C:EB:FE	-_-*,,I,	Apple Inc.		38%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
58:96:3...8:6D:B4	RHC	Technicolor		38%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	144.4 Mbps	Just now
D4:5D:...7E:24:40	*Hidd...twork*	Pegatron...		28%	44	80 MHz	5 GHz	a/n/ac	5	WPA/WPA2 (PSK)	1300 Mbps	Just now
D2:03:4...0:E4:CA	Sand...twork	Apple Inc.		26%	1	20 MHz	2.4 GHz	b/g/n	4	WPA/WPA2 (PSK)	144.4 Mbps	2 sec ago
D0:03:4...0:E4:CA	Sand...tudio	Apple Inc.		24%	1	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	144.4 Mbps	Just now
20:76:0...4:C9:1C	the415	Actiontec...		22%	6	20 MHz	2.4 GHz	b/g/n	4	WPA/WPA2 (PSK)	144.4 Mbps	35 sec ago
C0:EA:E...6:4F:14	Bren...Guest	SonicWALL		17%	8	20 MHz	2.4 GHz	b/g/n	4	WPA/WPA2 (PSK)	216.7 Mbps	Just now

Network Details Signal Strength Spectrum Advanced Details



Finder File Edit View Go Window Help

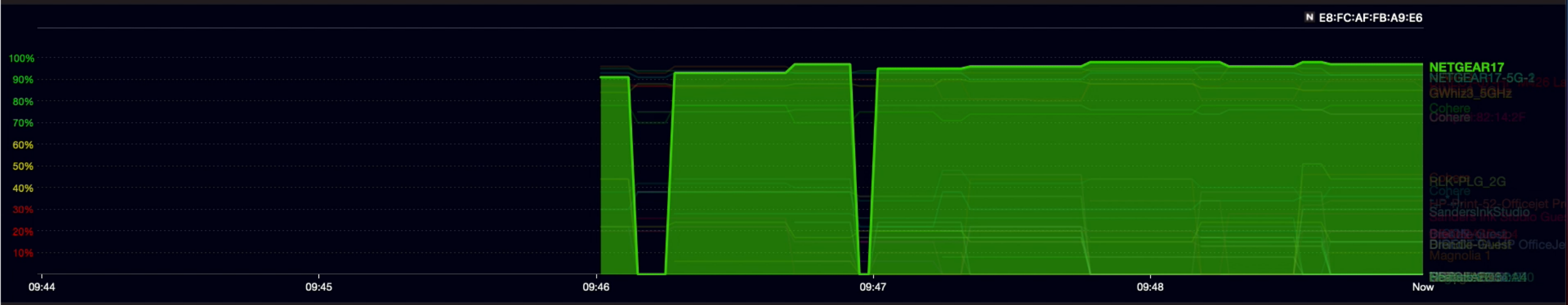
Sun Jul 25 9:49 AM

Scanning: Wi-Fi | NETGEAR17 6 20 MHz 130 Mbps N

All 2.4 GHz 5 GHz Open Secure Filter

BSSID	Network Name	Vendor	Annotations	Signal	Channel	Channel Width	Band	Mode	Generation	Security	Max Rate	Seen
E8:FC:...B:A9:E6	NETGEAR17	Netgear I...		97%	6	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
48:F8:B...B:14:0D	GWhiz3	Linksys		93%	3	20 MHz	2.4 GHz	b/g/n	4	WPA/WPA2 (PSK)	216.7 Mbps	Just now
E8:FC:A...B:A9:E5	NET...-5G-1	Netgear Inc.		92%	44	80 MHz	5 GHz	a/n/ac	5	WPA2 (PSK)	1300 Mbps	Just now
E8:FC:A...B:A9:E7	NET...-5G-2	Netgear Inc.		92%	153	80 MHz	5 GHz	a/n/ac	5	WPA2 (PSK)	1300 Mbps	Just now
42:B8:9...0:10:07	DIRE...serJet	Hon Hai Pr...		90%	3	20 MHz	2.4 GHz	g/n	4	WPA2 (PSK)	72.2 Mbps	Just now
48:F8:B...B:14:0F	GWhi...5GHz	Linksys		86%	161	80 MHz	5 GHz	a/n/ac	5	WPA/WPA2 (PSK)	1300 Mbps	Just now
48:F8:B...B:14:0E	GWhi...5GHz	Linksys		85%	36	80 MHz	5 GHz	a/n/ac	5	WPA/WPA2 (PSK)	1300 Mbps	Just now
04:18:D...2:14:A4	Cohere	Ubiquiti N...		78%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
06:18:D...2:14:A4	Hidd...twork	Ubiquiti N...		78%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	2 min ago
04:18:D...82:14:2F	Cohere	Ubiquiti N...		74%	1	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
06:18:D...82:14:2F	Hidd...twork	Ubiquiti N...		74%	1	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
04:18:D6:82:16:1E	Cohere	Ubiquiti N...		46%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
04:92:2...5:B1:98	RLK-...G_2G	ASUSTeK...		44%	10	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	144.4 Mbps	Just now
06:18:D6:82:16:1E	Hidd...twork	Ubiquiti N...		44%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	2 min ago
04:18:D...81:14:A4	Cohere	Ubiquiti N...		40%	149	40 MHz	5 GHz	a/n	4	WPA2 (PSK)	300 Mbps	Just now
06:18:D...81:14:A4	Hidd...twork	Ubiquiti N...		38%	149	40 MHz	5 GHz	a/n	4	WPA2 (PSK)	300 Mbps	20 sec ago
64:A5:C...C:EB:FE	-_-*,,I,	Apple Inc.		36%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	216.7 Mbps	Just now
58:96:3...8:6D:B4	RHC	Technicolor		36%	11	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	144.4 Mbps	1 min ago
A0:2B:B...D:99:52	HP-P...8620	HP Inc.		34%	6	20 MHz	2.4 GHz	b/g		WPA2 (PSK)	54 Mbps	Just now
D0:03:4...0:E4:CA	Sand...tudio	Apple Inc.		30%	1	20 MHz	2.4 GHz	b/g/n	4	WPA2 (PSK)	144.4 Mbps	Just now
D2:03:4...0:E4:CA	Sand...twork	Apple Inc.		28%	1	20 MHz	2.4 GHz	b/g/n	4	WPA/WPA2 (PSK)	144.4 Mbps	Just now
D4:5D:...7E:24:40	Hidd...twork	Pegatron...		26%	44	80 MHz	5 GHz	a/n/ac	5	WPA/WPA2 (PSK)	1300 Mbps	25 sec ago
28:80:8...5:BD:4E	NETGEAR55	Netgear Inc.		22%	3	20 MHz	2.4 GHz	b/g/n/ax	6	WPA2 (PSK)	229.4 Mbps	1 min ago

Network Details | Signal Strength | Spectrum | Advanced Details



Networks Found: 44, Displayed: 44 (100%)

100% Title Arial

Real-life Example #3: Understating Filtering (for Children's Internet Protection Act - CIPA – Compliance)

Where does filtering fit in?

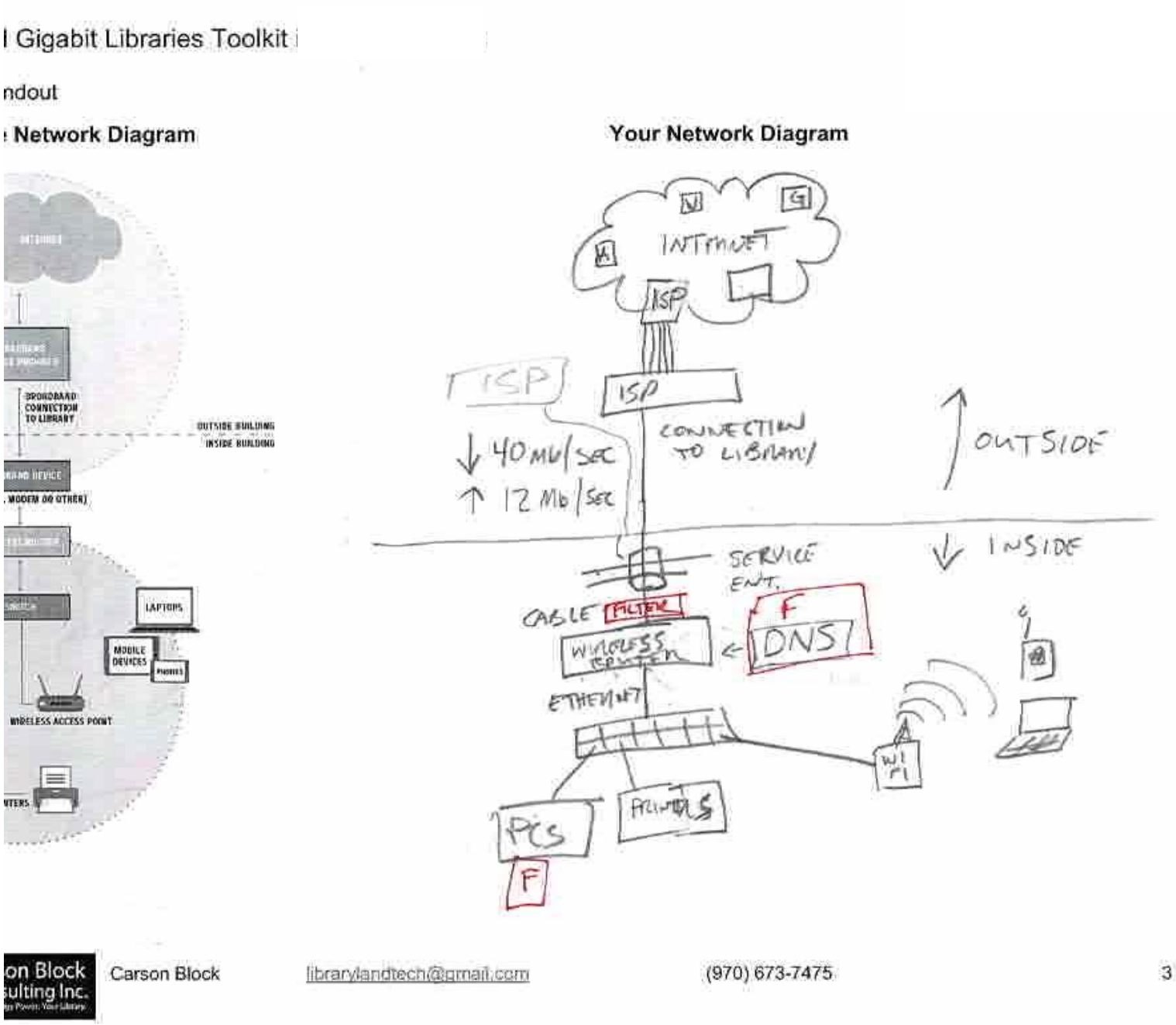
DNS vs. Hardware vs. Software

What is the difference between a firewall and filtering?

Will a firewall alone make a library CIPA compliant?

If not, are there any bundled options that are recommended?

TSLAC Webinar explaining a few different options: https://onlinetraining.tsl.texas.gov/course/view.php?id=310&section=0



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Real-life Example #4:
Adding in-house use of laptops to provide patron access to more computers in your library.

Laptops in the Library

Tech Connect - Santa Fe Public Library

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Managing a laptop checkout program

Vision and Purposed for hardware circ?

In-house or out-of-house? Huge difference!

Protecting the machines

- “Dixie Cups” or rugged?

Protecting patrons

- Anti-virus
- Deep Freeze
- OS updates

User Experience (Patrons and Staff)

- Automated or Manual Circ?
- Tech support (all types)

How Do I know What I Need?

Time to Upgrade Your Library's Technology Equipment…but How?
Technology Items to Purchase
July 29, 2021

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Item	# Items	Cost Per Item	Total Cost	Comments	Source of Purchase

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http://www.carsonblock.com/

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Evaluating Technology Products (Handout: Review Resources)

Good News!

Many off-the-shelf computers already have what you need!

Some Best Practices - Computers

- “Midrange” is a great bet for common tasks
- More RAM and better processors for heavy-duty tasks (like video editing, 3D/CAD and graphics design)
- What about Macs and the M1 chip? (changes in onboard RAM)
- Refresh Cycles – a little longer today depending on use
- Installation assistance – Public PC vs Staff PC
- Maintenance

Handouts from this webinar:

- Toward Gigabit Libraries Toolkit
- Technology Inventory (Hardware and Software)
- Total Cost of Ownership (TCO) Worksheet
- Pro Tips and Examples
- Speed Test Worksheet
- Network Diagram Worksheet
- Purchasing Evaluation Guide
- Tech Items to Purchase
- Resource Links Document
- Rack Diagram Worksheet (OPTIONAL)

Available for download from Google Drive:
https://tinyurl.com/yj2e5r39

How Do I Get Webinar Materials?

Additional resources from TSLAC

- You Can Do I.T.
  - Basic Hardware and Software for Public Libraries
  - Basic Network Technology for Public Libraries
- Texas Digital Inclusion webinar archives
  - Towards Digital Equity and Technology Access in Texas Libraries
  - The Library's Role in Connecting Texans to Internet Access
- Archived TSLAC Technology webinars
- Digital Inclusion, Technology and E-rate resources
- TSLAC Grants landing page

Any Questions?

Thank you for attending!